

Work Order ID 151673

Wednesday, October 05, 2016 3:09:17 PM

151673

Page 1

Item ID: 646.3310

Revision ID:

Item Name: LH Half - Upper Cutter Assembly

Start Date: 9/9/2016 Start Qty: 8.00

Required Date: 10/5/2016 Req'd Qty: 8.00

Reference:

DAS

21

9-89

Approvals: Process Plan: Date: OCT 06 2016

QC:

Date:

Tooling:

Date:

SPC (Y/N):

Date:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
646.3300	N/C3								

110

110

HAAS 1

HAAS CNC vertical machine #1

HAAS CNC VERTICAL MACHINING #1

Memo

1-Machine per folio FB154

DWG REV: N/C3FOLIO REV: AA

Blank 13.375

2- deburr and break all sharp edges

0.10

0.83

DAS
33
9-89SL
16-10-27

16/10/26

8 0

120

120

QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

Memo

0.00

0.01

DAS
33
9-89SL
16-10-27

16/10/26

8 0

see email attached
2 last pages

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____																																																									
Description Work Order Deviation				Disposition																																																													
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

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SX Sp/6-12

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design ☐	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data ☐	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling ☐	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre ☐	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material ☐	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport ☐	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge ☐	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA ☐	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation ☐	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date ☐	☐	Manufacturing Process	☐	OTHER : _____			
Misidentified ☐	☐	Past Due	☐				

Work Order ID 151673

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151673

Page 3

Item ID: 646.3310 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: LH Half - Upper Cutter Assembly
Start Date: 9/9/2016 Start Qty: 8.00 ***8*** Cust Item ID:
Required Date: 10/5/2016 Req'd Qty: 8.00 ***8*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
155 *155* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo <i>paint thickness 0.8 mils</i>	0.00 0.03				<u>8</u>			<i>UAS</i> <i>38</i> <i>9-99</i> DEC 08 2016
180 *180* Packaging Packaging	Identify as per dwg & Stock Location: <u>CC1022</u> Memo ***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***	0.00 0.01				<u>8</u>	<u>MF 10-12-08</u>		
190 *190* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.01							<i>10/12/13</i> <i>MF</i> <i>10-12-08</i>

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

Picklist Print

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Work Order ID: 151673

151673

Parent Item: 646.3310

646 3310

Parent Item Name: LH Half - Upper Cutter Assembly

Start Date: 9/9/2016

Required Date: 10/5/2016

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP REV:A NEW ISSUE 12/11/17 JFS VERIFY BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M7075T6B7.000X2.000		Purchased		No			f	8.6785		9.389474			
M7075T6B7 000X2 000									**			DAS 33 9-89	
7075-T6 BAR 7.000" X 2.000" (order in billets - 13.375")													

Location

Loc Qty

Loc Code

MAT001

8.6785

m135725

8.6785

2,6785

16/10/25

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

DART AEROSPACE LTD		Work Order: 151673
Description: LH Half		Part Number: 646.3310
Inspection Dwg: 646.3300 Rev: NC3		Page 1 of 1

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
7.296	+/-0.005	7.296	✓		3106	Height
3.767	+/-0.005	3.768	✓		...	...
0.457	+/-0.005	0.458	✓		↓	↓
0.313	+/-0.005	0.314	✓		↓	↓
0.710	+/-0.005	0.711	✓		↓	↓
6.469	+/-0.005	6.470	✓		↓	↓
10.116	+/-0.005	10.117	✓		↓	↓
10.309	+/-0.005	10.310	✓		↓	↓
Ø0.177	+0.005/-0.001	0.178	✓		—	gauge pin
Ø0.209	+0.005/-0.001	0.210	✓		...	...
0.250	+/-0.005	0.245	✓		MJP-0.4	vern
1.250	+/-0.005	1.250	✓		...	...
R0.125	+/-0.005	0.125	✓		—	Radius gauge
3.513	+/-0.005	3.514	✓		3106	Height gauge
8.375	+/-0.005	8.375	✓		...	...
0.250	+/-0.005	0.249	✓		MJP-0.4	vern
8.1°	+/-0.5°	8.1°	✓		...	...
11.689	+/-0.005	11.689	✓		3106	Height gauge
11.250	+/-0.005	11.250	✓		↓	↓
0.200 x 45°	+/-0.005	0.200 x 45°	✓			↓

Measured by: DAS 33	Checked by: B. DAS 08	QC Inspector:
Date: 9-89 16/10/26	Date: 16/10/27 9-89	Date:

Engineering Approval: (If necessary)	Date:
--	--------------

Rev	Date	Change	Revised by	Approved
A	14.06.25	New Issue	KJ	
B	16.08.29	Dwg Rev updated	KJ	

APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

04765

SHEET 1 OF 1

DWG NO. 646.3300

REV: NC

PREPARED BY J. SOTO

DATE: 12/08/2014

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: UPPER CUTTER ASSY

APPROVED BY:

ENGR. *[Signature]*

MFG

[Signature]

QC

[Signature]

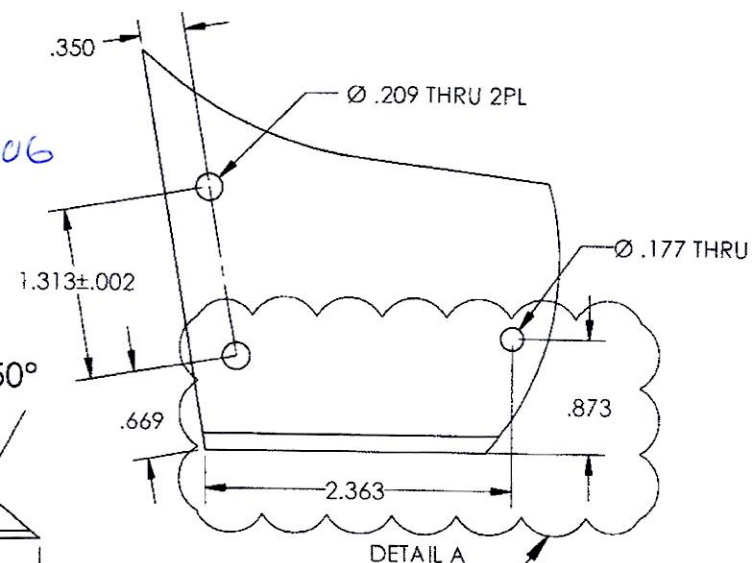
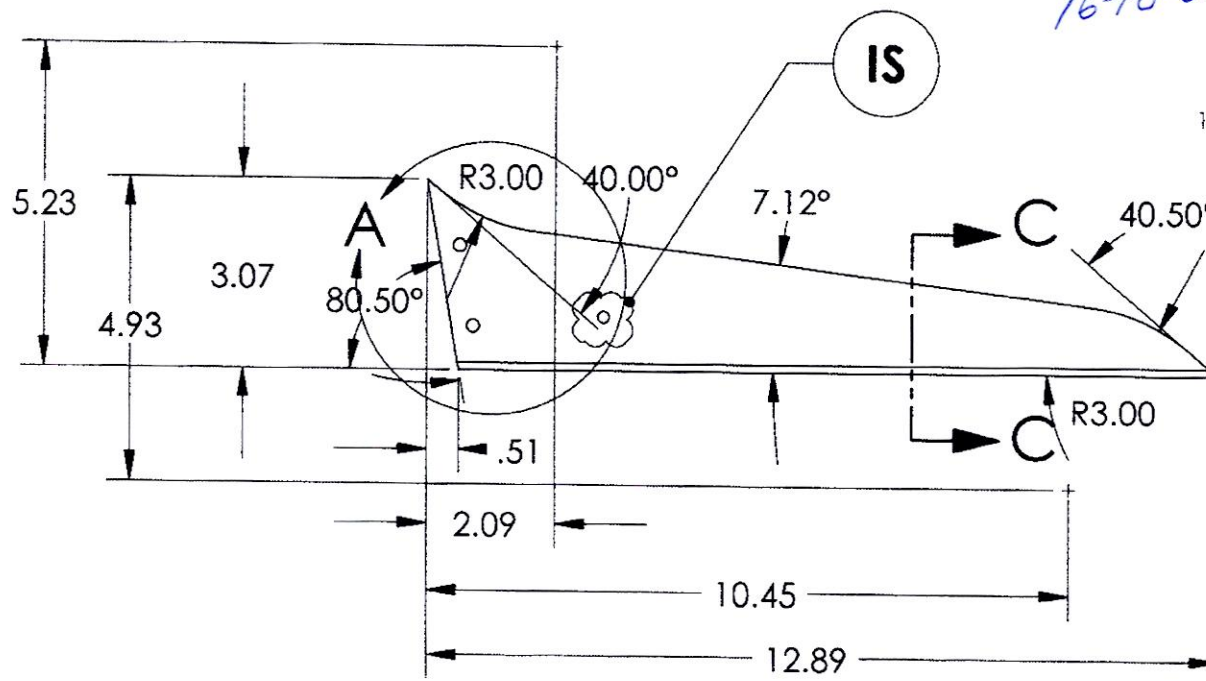
EFF. NEXT ORDER

TRANSACTION CODES (TC):
A-ADD
C-CREATE
R-REVISE
D-DELETE

REASON: ADDED HOLE DIMENSION TO 646.3313.

SHEET 5 IS:

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 151673 MJS
1670-06



DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

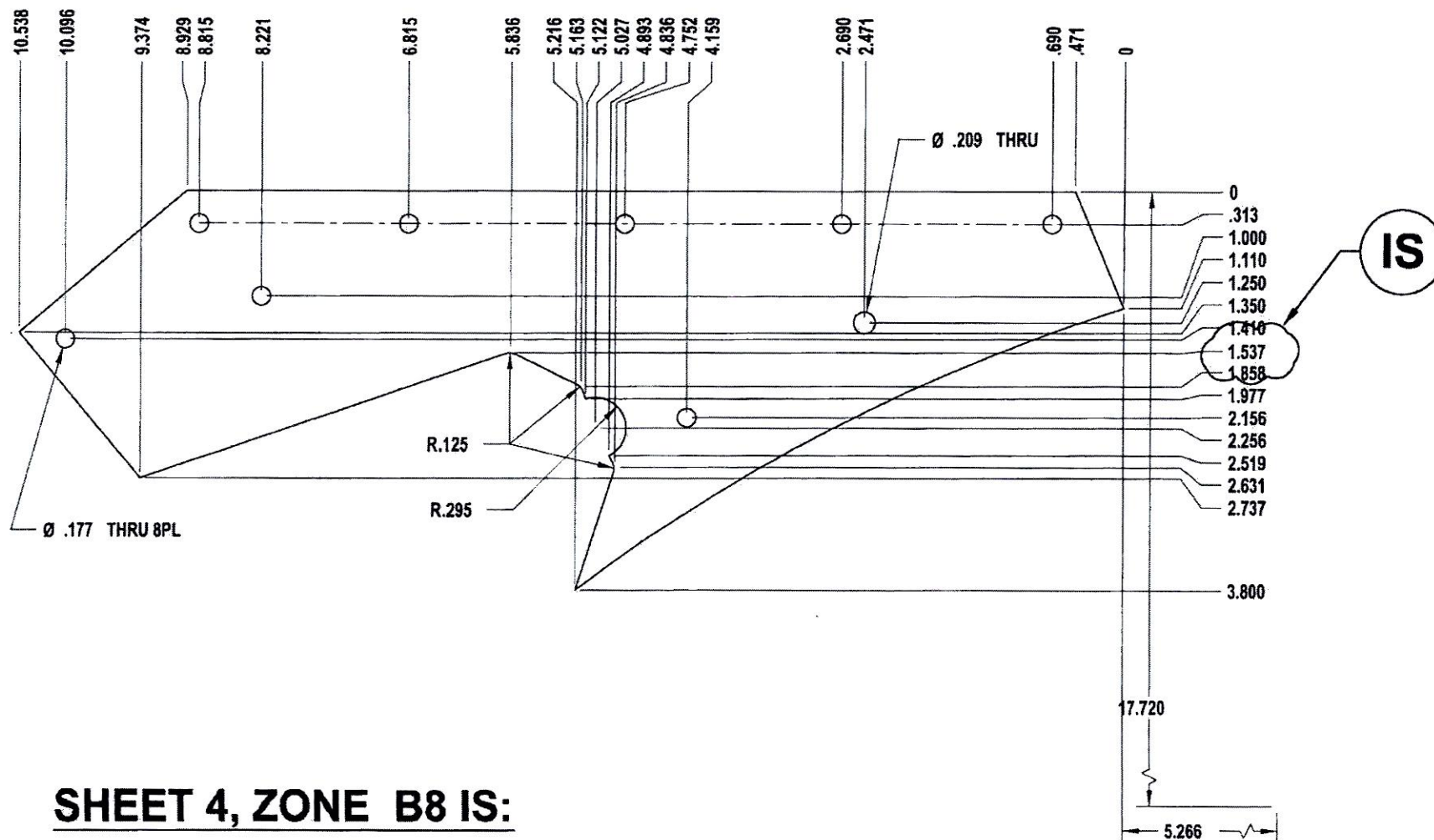
CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 03724				SHEET 1 OF 1	
	DWG NO. 646.3300	REV: N/C	PREPARED BY B. PETERS	DATE: 12/05/12	EFFECT ON DWG ☐ INC. ☒ UNINC.	
	DWG TITLE: UPPER CUTTER ASSY					
	APPROVED BY: ENGR <i>[Signature]</i>	MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER		
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED ORDINATE DIMENSION.				ECR: D-12-025	

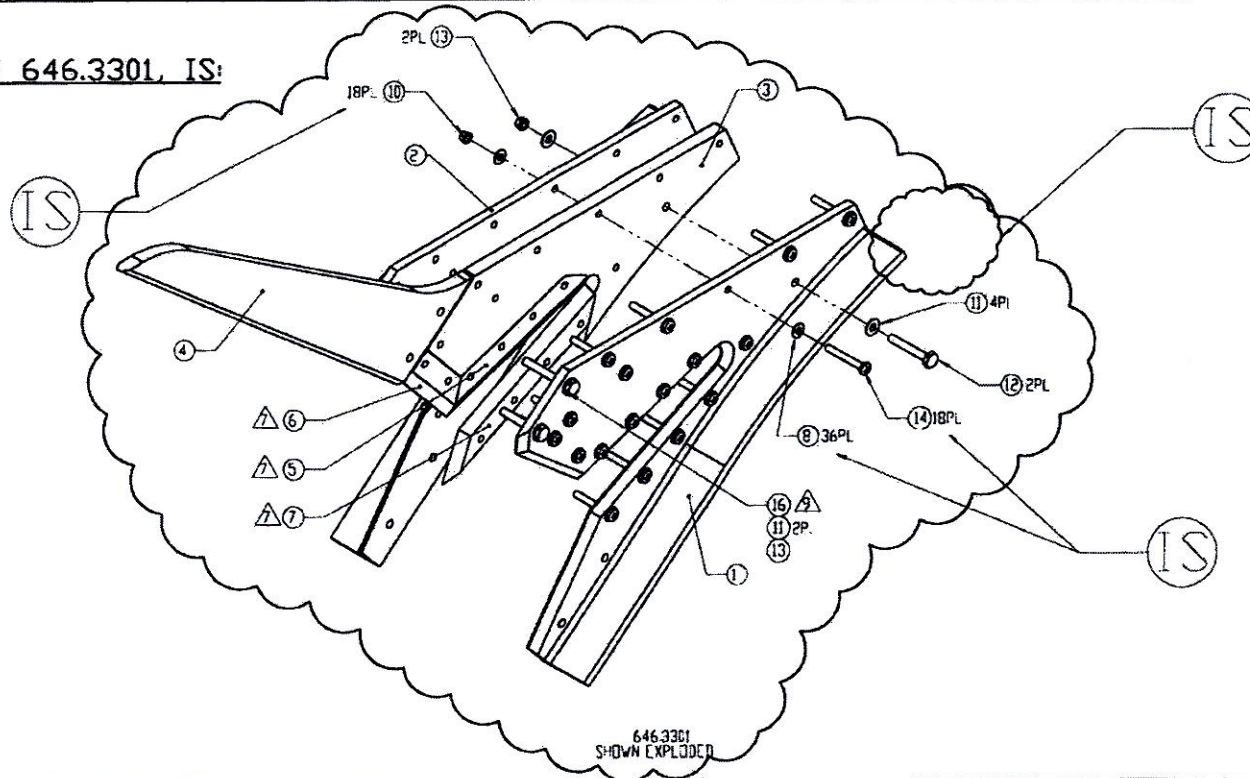


SHEET 4, ZONE B8 IS:

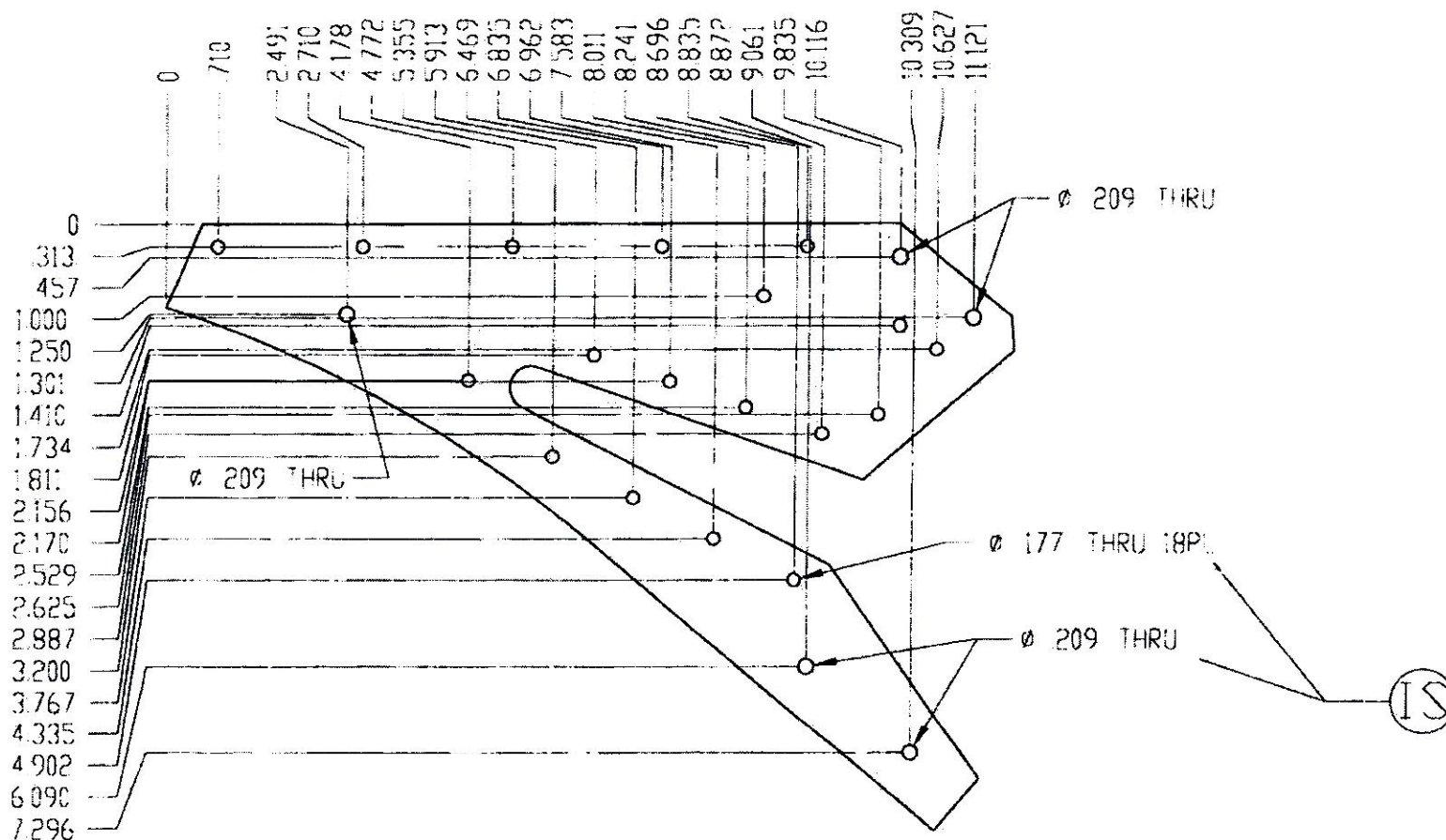
DOCUMENTS EFFECTED:	☐ RFMS ☐ MDL ☐ INSTALL INSTRU ☐ ICA ☐ BOM	CHANGE CATEGORY ☐ MAJOR ☒ MINOR	DER REVIEW REQUIRED ☐ YES ☒ NO
---------------------	--	---	--

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 02196			SHEET 1 OF 2	
	DWG NO. 646.3300	REV: N/C	PREPARED BY S. HUFF	DATE: 01/05/09	EFFECT ON DWG ☐ INC. ☒ UNINC.
	DWG TITLE: UPPER CUTTER ASSY				
APPROVED BY: ENGR <i>[Signature]</i>		MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER	
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REMOVED RIVETS IN FAVOR OF ADDITIONAL SCREWS			

SHEET 1, VIEW 646.3301, IS:



14	R	601.2765		18	SCREW	MS27039-0819
10	R	601.1541		18	LOCKNUT	MS21042L08
9	D	601.2766		3	RIVET	MS20470AD5-18
8	R	601.2764		36	WASHER	NAS1149FN832P
				.3301		
F/N	TC	PART NUMBER	QTY	DESCRIPTION		MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED:					CHANGE CATEGORY	DER REVIEW REQUIRED
☐ MDL ☒ INSTALL INSTRUC ☒ ICA ☐ FMS ☒ BOM					☐ MAJOR ☒ MINOR	☐ YES ☒ NO

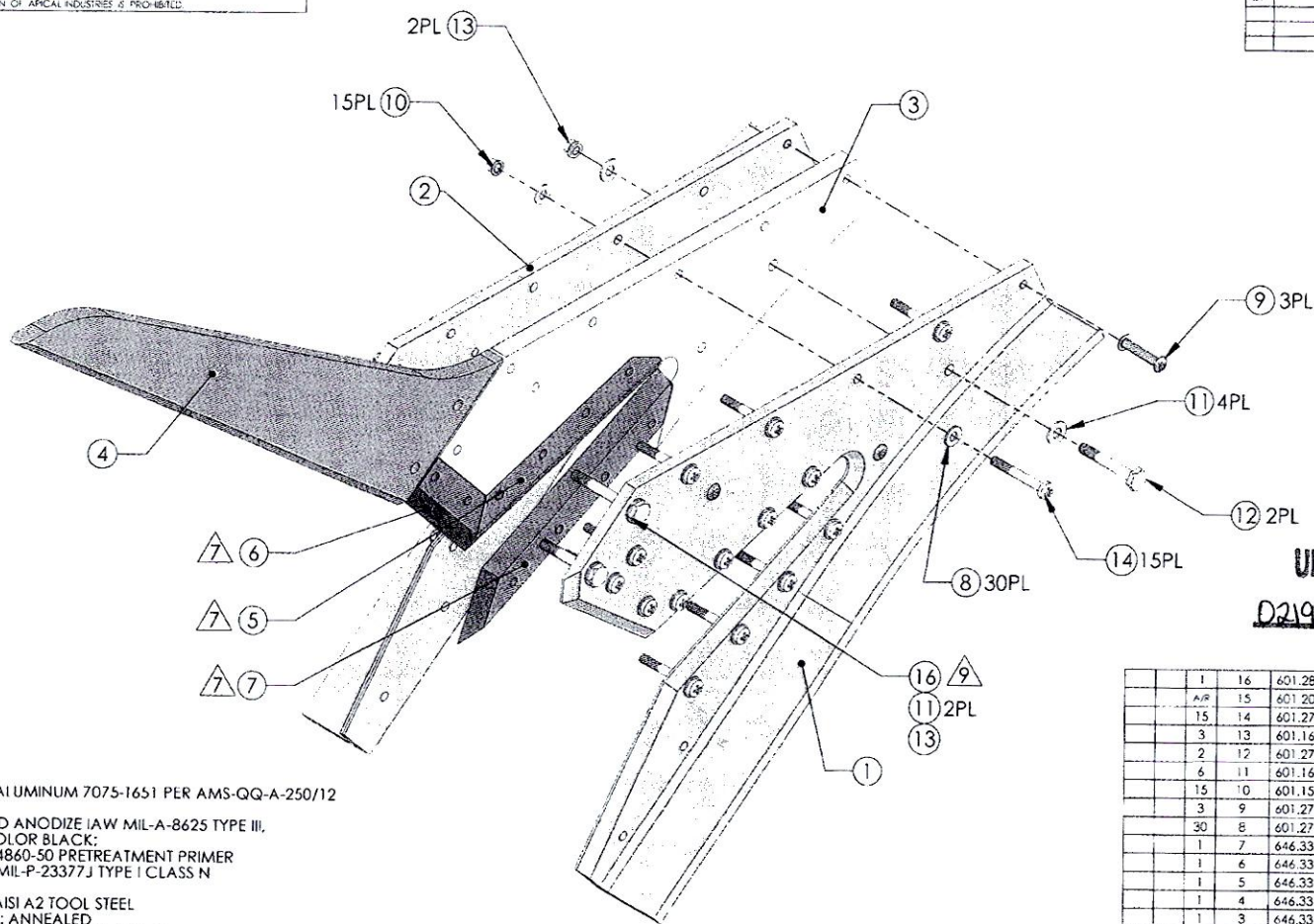
SHEET 3, SECTION VIEW A-A, IS:

SECTION A-A

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



UNINCORPORATED ECN(S)

02196, 03724, 04765

NOTES:

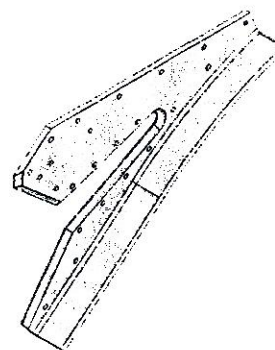
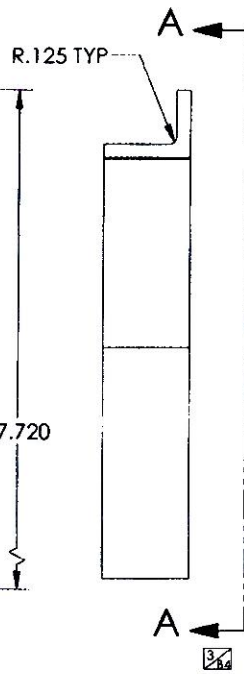
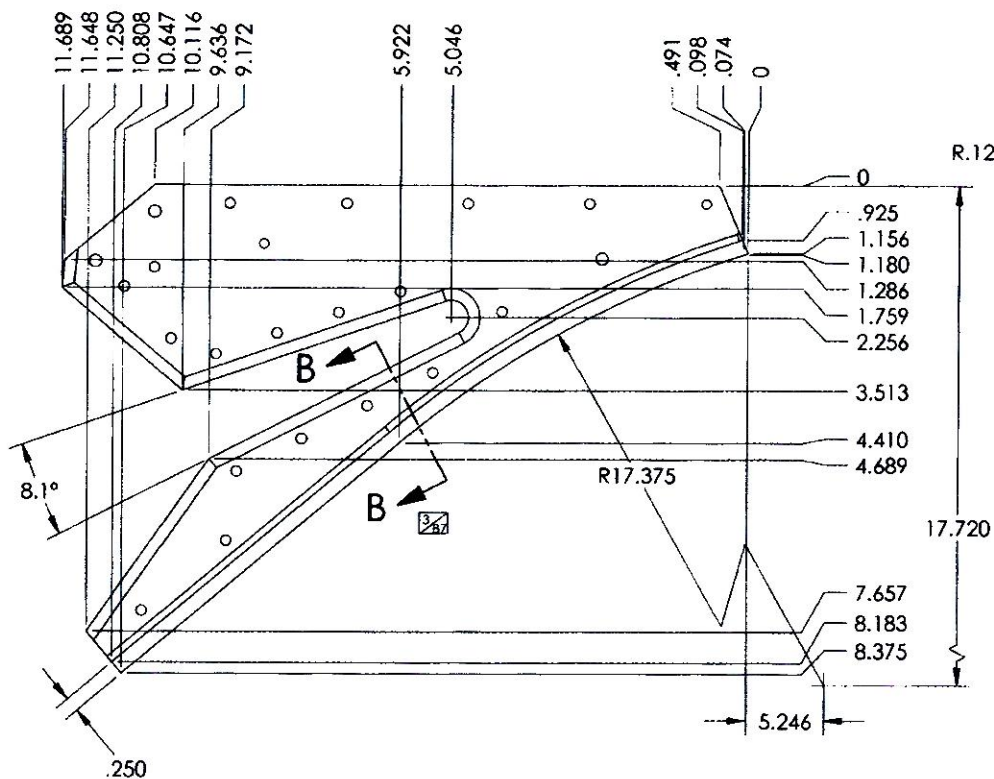
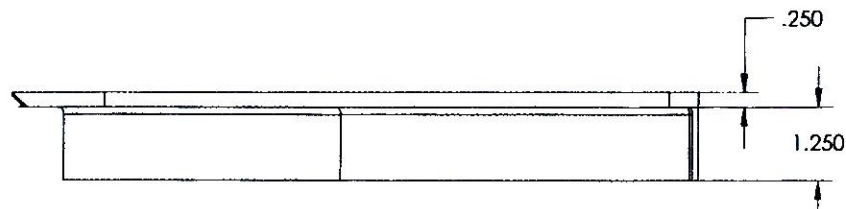
- 1 MATERIAL: ALUMINUM 7075-1651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; CARDINAL 4860-50 PRETREATMENT PRIMER PRIME IAW MIL-P-23377J TYPE I CLASS N
- 3 MATERIAL: AISI A2 TOOL STEEL CONDITION: ANNEALED POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 15 AS REQUIRED TO ALL FAYING SURFACES OF F/N 5, 6 & 7 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 INSTALL FASTENER FINGER-TIGHT

646.3301
SHOWN EXPLODED

QTY	1	16	601.2834	BOLT	AN3-144	
	A/R	15	601.2045	RTV, LOC'TE 598		
	15	14	601.2765	SCREW	M321045L3	
	3	13	601.1624	LOCKNUT	M321045L3	
	2	12	601.2763	BOLT	AN3-124	
	6	11	601.1607	WASHER	HA51149R232P	
	15	10	601.1541	LOCKNUT	M321045L3	
	3	9	601.2766	RIVET	M32041045-18	
	30	8	601.2764	WASHER	HA51149R232P	
	1	7	646.3316	BLADE		
	1	6	646.3315	BLADE		
	1	5	646.3314	BLADE		
	1	4	646.3313	UPPER GUIDE		
	1	3	646.3312	CENTER PLATE		
	1	2	646.3311	RH HALF		
	1	1	646.3310	LH HALF		
			646.3301	UPPER CUTTER ASSY		
QTY	FIND #	PART #	DESCRIPTION	MATL	SPEC.	
PARTS LIST						
NEXT ASSY (S)						
646.4000						
ORIGINAL DATE: 08-24-88						
DRAWN BY: S. HUPP						
CHECKED BY: P. BRAY						
APPROVED BY: [Signature]						
CONTRACT NO.:						
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES AND DECIMALS ARE TO 0.001 UNLESS OTHERWISE NOTED.						
SCALE: NONE						
SHEET 1 OF 8						

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760) 724-5300
UPPER CUTTER ASSY
646.3300
SCALE: NONE
SHEET 1 OF 8

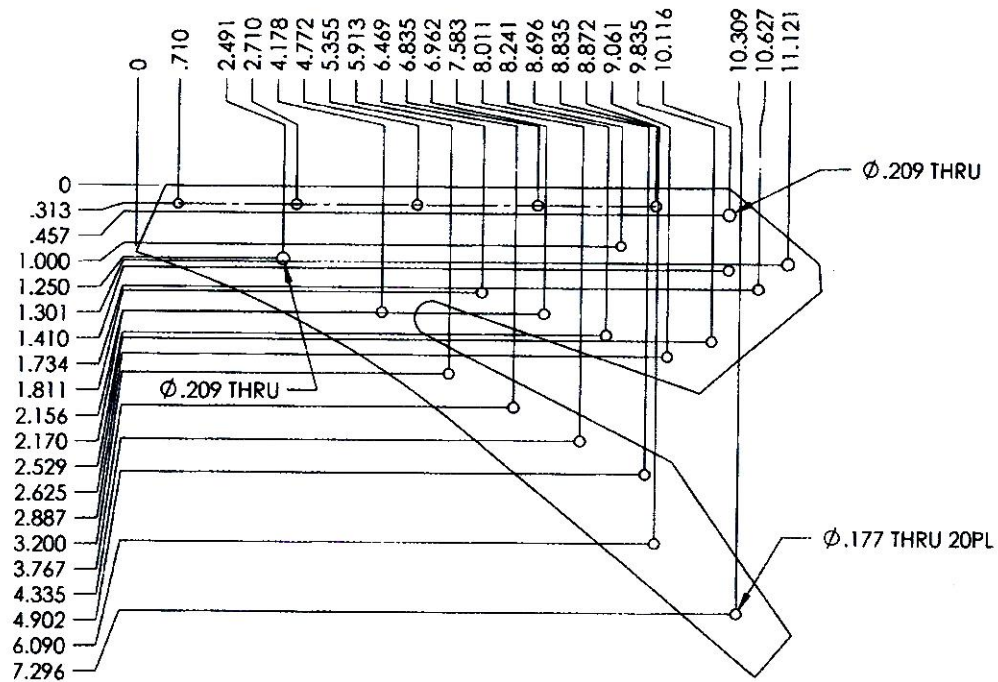
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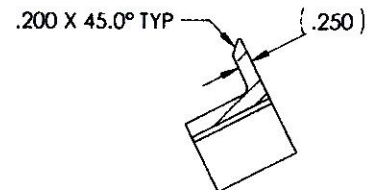
646.3310 SHOWN
646.3311 OPPOSITE

ORIGINAL DATE: 08/26/08		APICAL INDUSTRIES	
DRAWN BY: J. HOFF		2608 TEMPLE HEIGHTS DR.	
CHECKED BY: P. BRADY		OCEANSIDE, CA 92056-3512 (760)724-5300	
DRAWING APPROVAL: P. BRADY		UPPER CUTTER ASSY	
CONTRACT NO.		SCALE: NONE	
TOLERANCES UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES		SHEET 2 OF 8	
TOLERANCES ARE: 2 PLACE DECIMALS ±.01		PART NO. 646.3300	
3 PLACE DECIMALS ±.001		N/C	
ANGLES: 1°			

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SECTION A-A

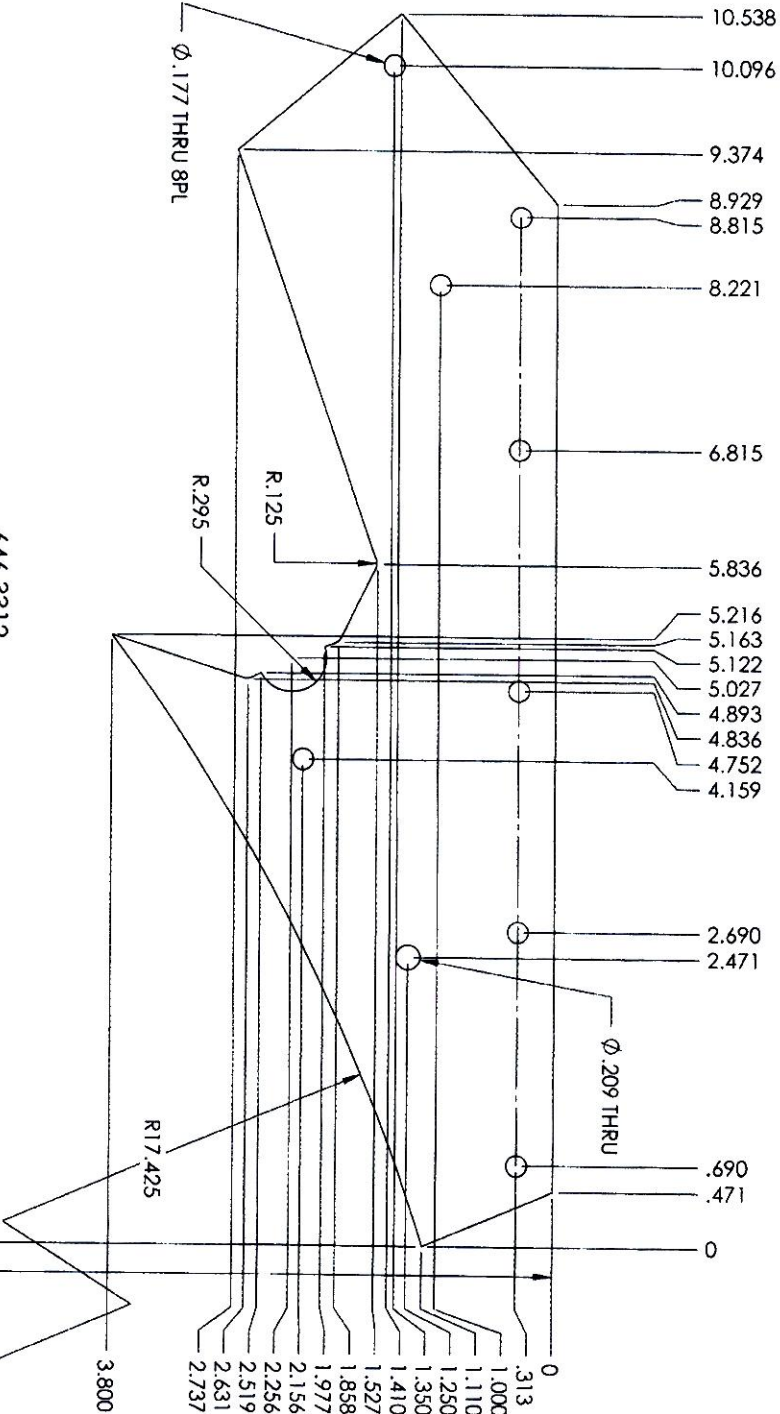


SECTION B-B

ORIGINAL DATE 10-2-88		APICAL INDUSTRIES	
DRAWN BY P. BRAVO		2608 TEMPLE HEIGHTS DR.	
CHECKED BY P. BRAVO		OCEANSIDE, CA. 92056-3512 (760)724-5300	
CONTRACT NO.		UPPER CUTTER ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1 PLACE DECIMALS ±.01 2 PLACE DECIMALS ±.005 ANGLES ±.5°		W/	REV
B		07/02/88	646.3300
SCALE: NONE		SHEET 3 OF 8	

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APICAL INDUSTRIES AND SHALL REMAIN THE PROPERTY OF APICAL INDUSTRIES
THE VERTICAL FEEDBACK OF APICAL INDUSTRIES IS PROHIBITED.

REV	DESCRIPTION	DATE	BY	CHKD

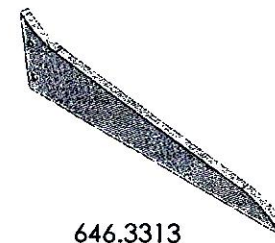
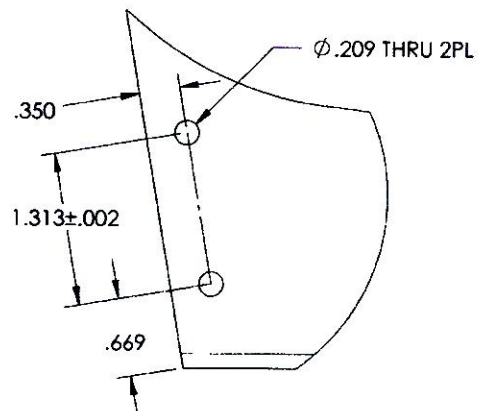
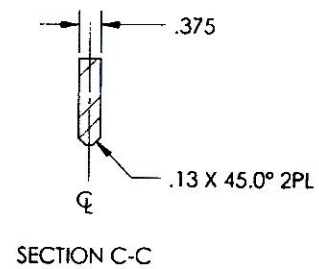
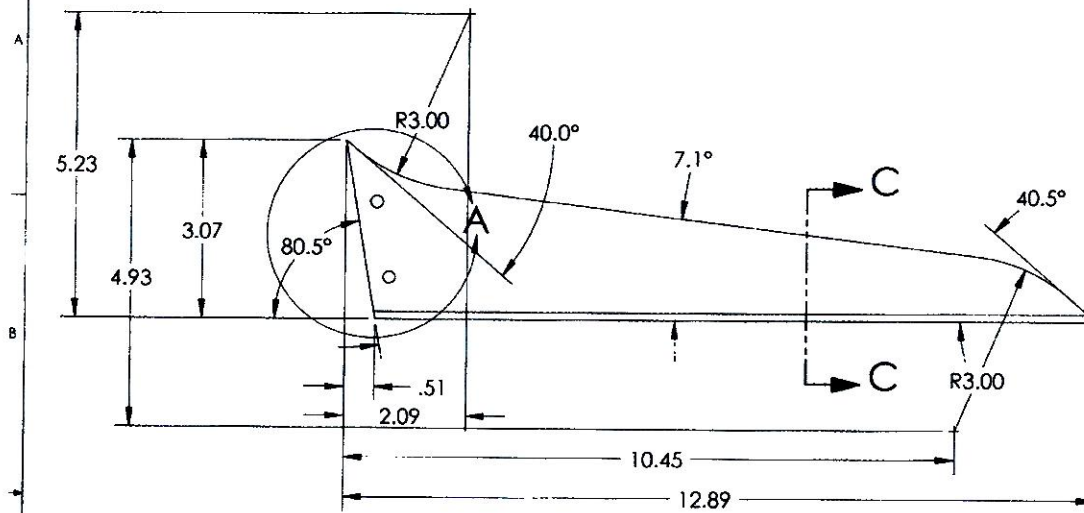


646.3312
HOLE DIMENSIONS AND LOCATIONS
+/- .002

DESIGN DATE	2/2/8
DESIGNED BY	APICAL INDUSTRIES
1. REV	2608 TEMPLE HEIGHTS DR.
2. REV	OCEANSIDE, CA 92056-3512
3. REV	1760724-5300
4. REV	UPPER CUTTER ASSY
5. REV	646.3300
6. REV	SCALE NONE
7. REV	SHEET 4 OF 8

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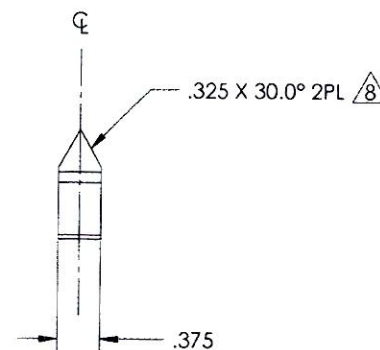
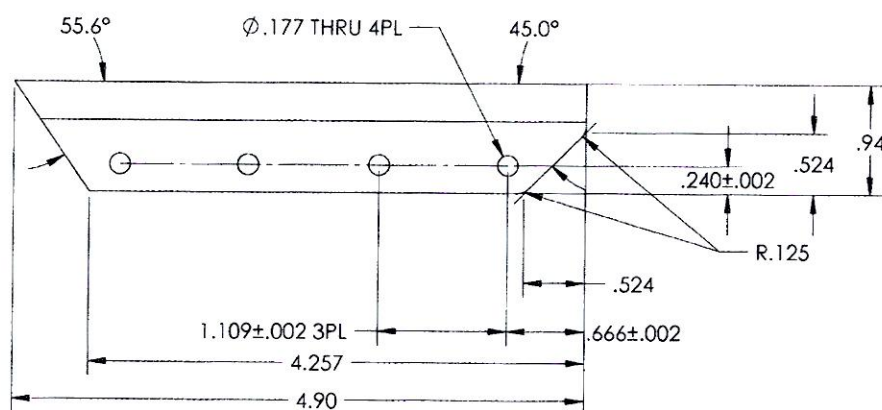
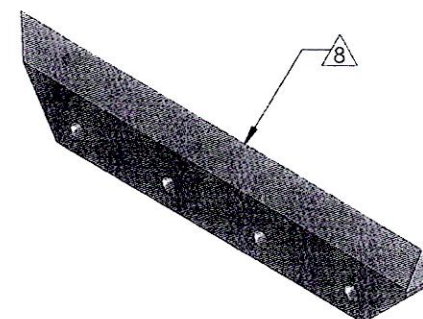
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE (AND DATE) 08-26-08		APICAL INDUSTRIES	
DRAWN BY: J. HURF		2608 TEMPLE HEIGHTS DR.	
CHECKED BY: J. HURF		OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DESIGNED BY: J. HURF		UPPER CUTTER ASSY	
REVISED BY: J. HURF		SCALE: NONE	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1 PLACE DECIMAL: ± .01 2 PLACE DECIMAL: ± .001 ANGLES: ± .5°		SHEET 5 OF 8	REV N/C

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THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV		DESCRIPTION	DATE	APPROVED

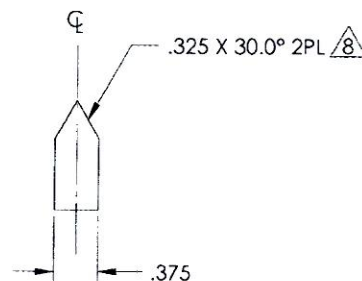
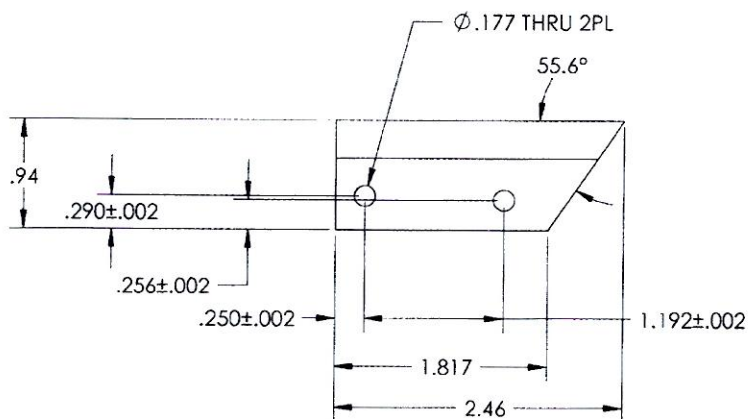
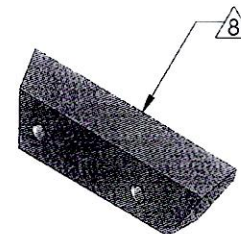


646.3314

ORIGINAL DATE 10/11/11 DRAWN BY S. HUBI P. BLAU CHECKED CONTRACT NO.		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300	
DRAFTER APPROVAL P. BLAU DATE		UPPER CUTTER ASSY	
ALL DIMENSIONS SPECIFIED UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS FIDELITY FRACTIONS DECIMALS FIDELITY FRACTIONS DECIMALS FIDELITY		101 CAGE CODE R 07M26	REV N/C
SCALE NONE		DWG. NO. 646.3300	SHEET 6 OF 8

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



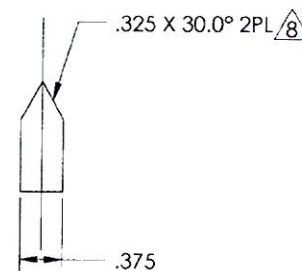
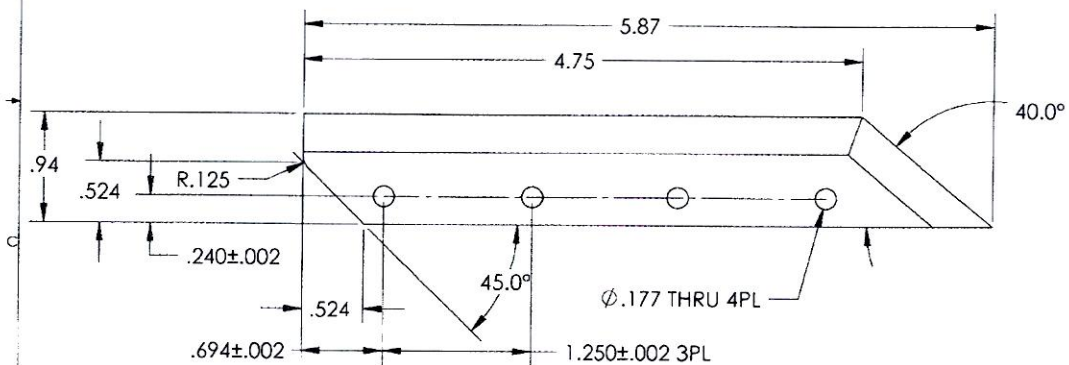
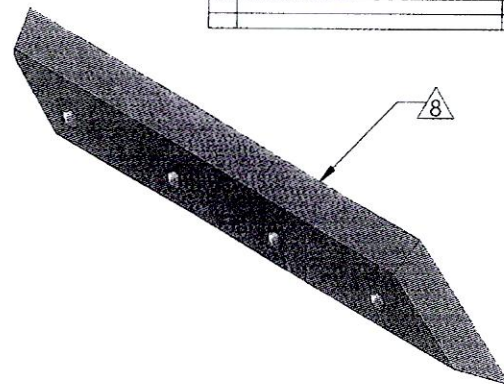
646.3315

DESIGN DATE		2608	
DESIGNED BY	CHECKED	2608	
DRAWN BY	APPROVED	2608	
CONTRACT NO.		2608	
UNLESS OTHERWISE SPECIFIED:		2608	
DIMENSIONS ARE IN INCHES		2608	
TOLERANCES ARE:		2608	
2 PLACE DECIMALS ±.01		2608	
3 PLACE DECIMALS ±.005		2608	
ANGLES ±.5°		2608	
SCALE NONE		2608	

APICAL INDUSTRIES	
2608 TEMPLE HEIGHTS DR.	
OCEANSIDE, CA. 92056-3512 (760) 774-5300	
UPPER CUTTER ASSY	
REV.	REV.
07/16/26	646.3300
SCALE NONE	SHEET 7 OF 8

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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



646.3316

ORIGINAL DATE 10/20/08		APICAL INDUSTRIES	
DRAWN BY S. P. H.		2608 TEMPLE HEIGHTS DR.	
CHECKED BY P. BRAYO		OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL P. BRAYO		UPPER CUTTER ASSY	
CONTRACT NO.		646.3300	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS .01 3 PLACE DECIMALS .005 ANGLES 1°		REV B 07/03/06	REV N/C
SCALE NONE		SHEET 8 OF 8	

Jean-Luc Menard

From: Pablo Bravo
Sent: Wednesday, July 13, 2016 8:35 PM
To: Jean-Luc Menard
Subject: RE: 646.3310/646.3311 DEVIATION

JL,

This should still work. Is there a reason why the parts are coming in under?

-Pablo

From: Jean-Luc Menard
Sent: Wednesday, July 13, 2016 9:47 AM
To: Pablo Bravo
Subject: FW: 646.3310/646.3311 DEVIATION

Hi Pablo,
We now have one coming at .237" in the same area, is this acceptable?
JL

From: Pablo Bravo
Sent: Wednesday, March 09, 2016 12:01 PM
To: Jean-Luc Menard <jmenard@dartaero.com>
Subject: RE: 646.3310/646.3311 DEVIATION

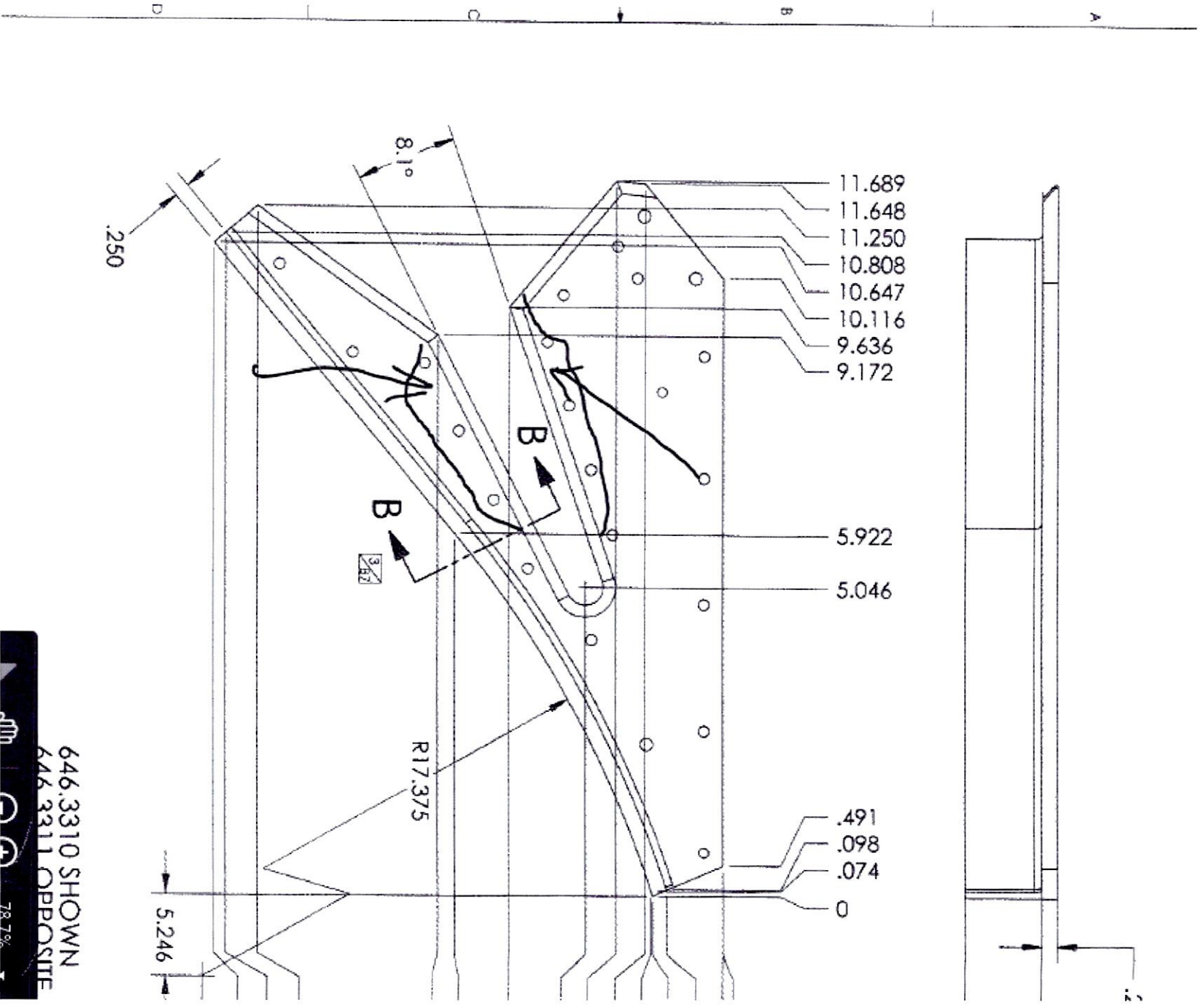
JL,

As long as the mating parts fit fine, this should be okay.

Pablo

From: Jean-Luc Menard
Sent: Wednesday, March 09, 2016 5:09 AM
To: Pablo Bravo
Subject: 646.3310/646.3311 DEVIATION

Hi Pablo,
WE have a part coming in at .242" in the area shown, is this deviation acceptable?
Thx
JL



Jean-Luc Menard
Production Engineering Supervisor

DART AEROSPACE

T 1 613 632-5200 > 227

F 1 613 632-5246

1 800 556- 4166

www.dartaerospace.com



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO34302**

Purchase Order Date 11/14/2016

PO Print Date 11/25/2016

Page Number 2 of 3

Order From :

VC-ATG001

A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE ROAD
ROCKLAND, ON K4K 1T2
CANADA

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 613-446-4544

Ship To Contact

Ship To Phone

Ship Via:

Ship Acct:

VENDOR'S TRUCK

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

FCA - (Free Carrier)

3	151673	646.3310 LH HALF UPPER CUTTER REV. N/C	11/30/2016	8.00	\$18.10	\$144.80
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Yes

11/30/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

Line Total: \$144.80

4	151644	646.3812 GUSSET BRACKET REV. N/C	11/30/2016	10.00	\$6.10	\$61.00
---	--------	-------------------------------------	------------	-------	--------	---------

Yes

11/30/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

Line Total: \$61.00

5	151658	646.9810 DEFLECTOR REV. A	11/30/2016	6.00	\$47.25	\$283.50
---	--------	------------------------------	------------	------	---------	----------

Yes

11/30/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

Note:

DA:
36
9-RC

11/25/2016



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 912614

Date: 30-Nov-16

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

CHANTAL LAVOIE
Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms		Ship Via	
Quantity	Description		
	PLEASE REFERENCE THE PACK LIST NUMBER ON ALL CORRESPONDENCE TO THIS SHIPMENT. IF YOU HAVE ANY QUESTIONS, PLEASE CALL AT (613) 446-4544.		
20 ea	Part: 646.3010 LH Half Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20428	Rev: N/C PO: 34302	Line: 1
4 ea	Part: 646.3312 Center plate Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20429	Rev: N/C PO: 34302	Line: 2
8 ea	Part: 646.3310 LH half upper cutter Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20430	Rev: N/C PO: 34302	Line: 3
10 ea	Part: 646.3812 Gusset bracket Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20431	Rev: N/C PO: 34302	Line: 4
6 ea	Part: 646.9810 Deflector Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20432	Rev: A PO: 34302	Line: 5
1	Part: ADMINISTRATION FEE	Rev: N/A	

DAS
38
9-89

SP/6-12-1



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 912614

Date: 30-Nov-16

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

CHANTAL LAVOIE
Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms		Ship Via	
Quantity	Description		
ea	ADMINISTRATION FEE		
	Job: 20433	PO: 34302	Line: 6
DATE: <u>30/11/16</u>			
CERTIFIED SIGNATURE: <u>[Signature]</u>			
RECEIVER SIGNATURE: <u>SP/6-12-1</u>			
Note: This Packing Slip may contain parts that have been PLATED. Items that are plated may be subject to natural tarnishing and it is suggested that they be inspected within 24 hours of receipt.			
CERTIFICATE OF CONFORMANCE			
A.T.G. INDUSTRIES INC. CERTIFIES THAT ALL ITEMS IN THIS SHIPMENT CONFORM TO REQUIREMENTS.			
MADE IN CANADA.			